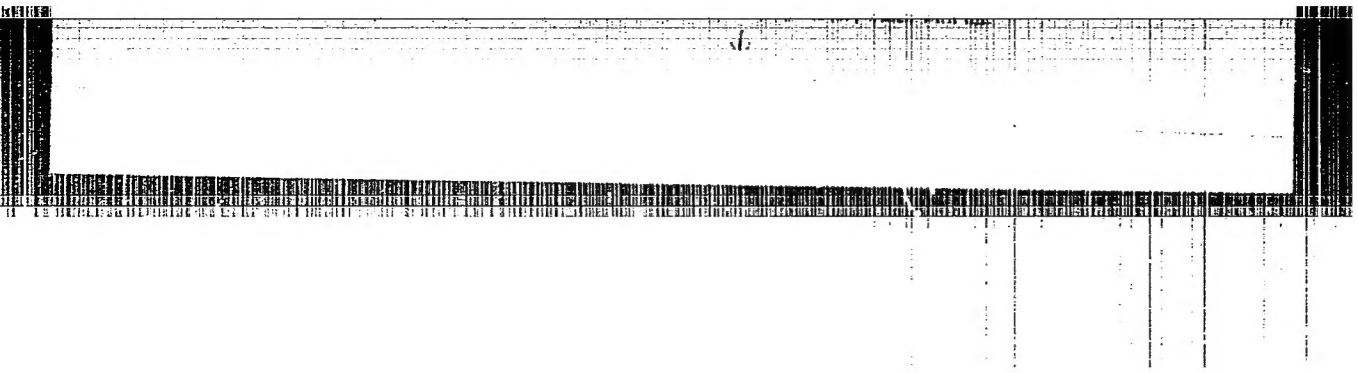
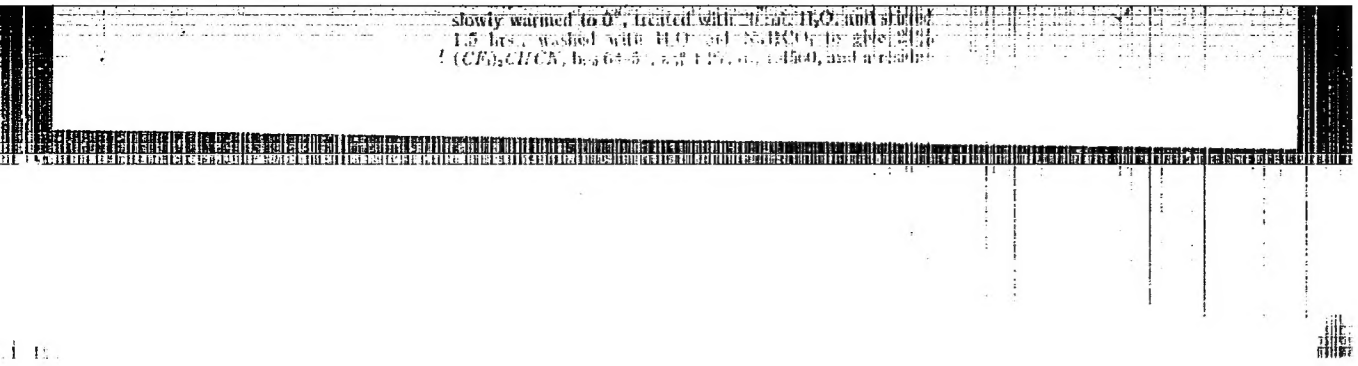
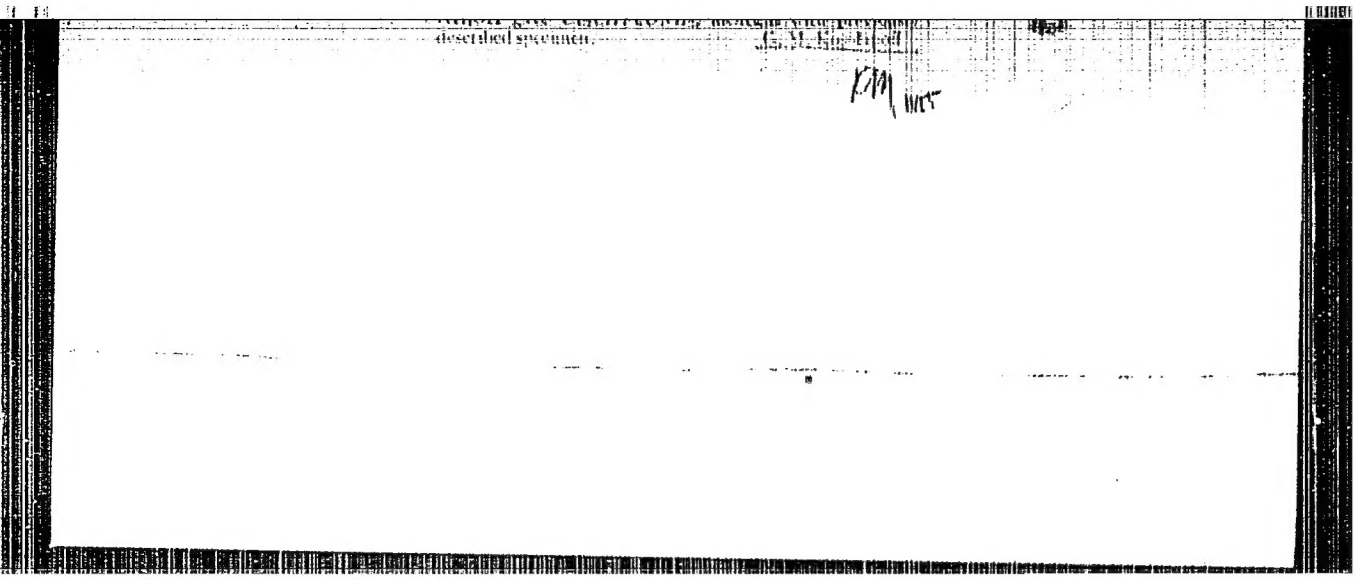


APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514910008-3"





YUR'YEV, Yu.K.; GERMAN, L.S.

Synthesis of N-(β-mercaptoethyl)-arylamines and N-(β-mercaptoethyl)-pyrrolidine. Vest.Mosk.un. Ser.mat.,mekh.,astron.,fiz.,khim. 11 no.1:197-199 '56. (MIRA 10:12)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Amines) (Pyrrolidine)

YUR'YEV, Yu.K.; GERMAN, L.S.

Synthesis of 3-aryl- and 2,3-diarylthiazolidines. Zhur.ob.khim. 26 no.2:550-553 F '56. (MLRA 9:8)

1. Moskovskiy gosudarstvennyy universitet.
(Thiazolidine)

20-2-24/60

AUTHORS: Dyatkin, B. L. , German, L. S. , Knunyants, I. L. , Member of the Academy

TITLE: Anionotropic Rearrangement of Substituted Perfluoropropenes (Anionotropnaya peregruppirovka zameshchennykh perftorpropenov)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp. 320-322 (USSR)

ABSTRACT: As was shown by the authors of the paper under review in an earlier scientific publication, the reactions of affiliation and of vinylic substitution are in competition with each other if we have the case of an interaction of perfluoropropylene and perfluorisobutylene, on the one hand , with alcohols and amines, on the other hand. No allylic substitution takes place. This demonstrates that in the molecules of these fluorolefines the effects of conjugation of the double bond with the C-F-bond in the CF_3-group are weak. From this point of view, the reactions of the chlorofluoropropenes and chlorofluorobutenes command great interest, particularly the reac-

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Anionotropic Rearrangement of Substituted Perfluoropropenes

tions of perfluorallylchloride $CF_2=CF-CF_2Cl$. There also exists information according to which influence of nucleophile reagents on perfluorallylchloride leads to a substitution of chlorine by a corresponding anion. It has to be assumed that this is the result of the conjugation of the bond C-Cl with the double bond. The authors of the present paper investigated the reactions of perfluorallylchloride with sodium methylate and diethylamine. The interaction with the sodium methylate leads to the perfluorallylmethylether. This reaction represents a new solution for arriving at the derivatives of the perfluoracrylic acid. The ether is polymerized even at a lower temperature. The reaction of perfluorallylchloride with diethylamine has a light course. The perfluorallyldiethylamine produced as result of this reaction rearranges itself, still during the reaction, into perfluorpropenyldiethylamine. Hydrolysis of the latter leads to diethylamide of the α-hydroperfluorpropionic acid. Bromination of the perfluorpropenyldiethylamine with a subsequent hydrolysis results in diethylamide of the α-bromoperfluorpropionic acid. The above isomerization represents an allylic rearrangement and probably is caused by the tendency towards formation of a stabler system, and this owing to the conjugation of a double bond

Anionotropic Rearrangement of Substituted Perfluoropropenes

with an unseparated electron pair of the substituent in the allylic position. The velocity of the rearrangement depends of the degree of mobility of the electron pair. Different compounds are arranged in a series in accordance with the criterion of stability. The experimental part of the paper under review contains the production methods together with the constants and yields of the substances investigated. There are 3 references, 1 of which is Soviet..

SUBMITTED: January 18, 1957

AVAILABLE: Library of Congress

Card 3/3

GERMAN, L. S.: Moscow Chem Sci (Diss) -- "The substitution reaction in perfluorocobaltylene and its derivatives". Moscow, 195[illegible]. 11 pp (Acad Sci USSR, Inst of Organoelem mtal compounds), 150 copies (KL, No 3, 1958, 107)

SOV/[illegible]

AUTHORS: Knunyants, I.L., Dyatkin, B.L., German, L.S.

TITLE: Reactions of Perfluoroacrylonitril (Reaktsii perftoratrilonitrila)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1958, Vol III, Nr 6, pp 826-829 (USSR)

ABSTRACT: It has been shown that pure perfluoroacrylonitril easily reacts with methanol and ethanol producing β-alkoxy-α-hydroperfluoropropionitrils. It reacts also with piperidine, anilin in an ether solution producing amino fluorohydrate.
There is 1 table and [illegible] non-Soviet refer[illegible].

ASSOCIATION: Institut [illegible] Akademii nauk SSSR (Institute [illegible] Elementa[illegible] Compounds of the USSR Academy of Sciences)

SUBMITTED: July 10, 1[illegible]

Card 1/1

5(3)

AUTHORS: Knunyants, I. L., Academician, Dyatkin, B. L., German, L. S.

SOV/20-124-5-28/62

TITLE: Reactions of Hexafluoro Butadiene-1,3 With Alcohols and Amines (Reaktsii geksaftorbutadiyena-1,3 so spirtami i aminami)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 5, pp 1065-1068 (USSR)

ABSTRACT: The reactivity of the 1,3-dienes of the perfluoro-carbon series has hardly been investigated (Refs 1-3). The reactions with nucleophilic reagents which very characteristic of fluoro olefins, have hitherto not been investigated in the case of perfluoro butadiene. These reactions are of particular interest for an understanding of the nature of the conjugated bonds in perfluorated dienes. Here, as distinguished from diene hydrocarbons, a negative rather than a positive charge is to be transmitted along the chain. By the interaction of perfluoro butadiene with sodium ethylate in ethanol the authors obtained a substance which separated HF and formed 1,4-diethoxyperfluoro butadiene-1,3 when isolation in a pure condition was attempted. The treatment of the latter compound with concentrated sulphuric acid resulted in the formation of the diethyl esters of

Card 1/3

fluoro ethylene-1,2-dicarboxylic acid. This ester was transformed into 3-carbethoxy-pyrazolone-5 by the action of hydrazine hydrate. Thus, perfluorobutadiene reacts with two alcohol molecules in the presence of alcoholate. In this connection the terminal carbon atoms are subjected to the nucleophilic attack. Heating of perfluoro butadiene with alcohol in the presence of triethylamine causes the addition of one alcohol molecule. The infrared spectrum and the nuclear-magnetic resonance of F^{19} suggest a 1,4 affiliation. Under mild conditions perfluoro butadiene reacts with the secondary and primary aliphatic amines. With diethylamine it forms the unstable 1-diethylamine-perfluorobutadiene-1,3, which is readily hydrolyzed to form the diethylamide of α-hydroperfluoro vinylacetic acid. A similar reaction is that of perfluoro butadiene with piperidine. By the interaction of perfluoro butadiene with ethylamine and the hydrolysis of the reaction products ethylamide of the last mentioned acid and bis-ethylamide of fluoro ethylene-1,2-dicarboxylic acid was produced. In this case the resulting bis-ethylamide of symmetrical

difluorosuccinic acid loses only a single HF molecule (as in the case of the ester) and forms a corresponding derivative of fluoro ethylene-1,2-dicarboxylic acid. There are 3 references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute for Elemental-Organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: November 21, 1958

S/062/60/000/02/03/012
B003/B066

5.3600

AUTHORS: Knunyants, I. L., German [illegible]

TITLE: Reactions of Fluoro-olefins. 11th Report Interaction of Compounds of the Perfluoro Isobutylene Series With Amines and Ammonia

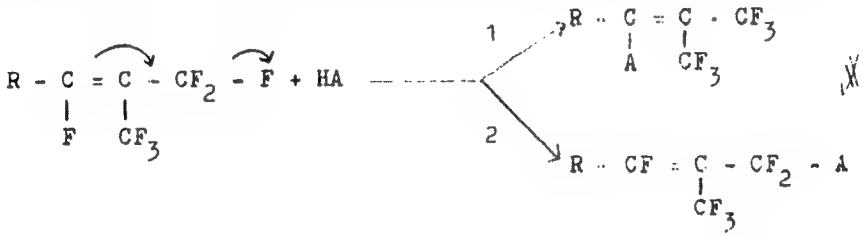
PERIODICAL: Izvestiya Akademii nauk SSSR Otdeleniye khimicheskikh nauk, 1960, No. 2, pp. 221 - 230

TEXT: The authors investigated the reactions of 1-alkyl-, 1-alkoxy-, and 1-aryl-perfluoro isobutylenes with amines and ammonia. (The following compounds were subjected to the experiments: 1-phenyl perfluoro isobutylene, 1-phenyl perfluoro propylene, α,β,β,β-tetrafluoro propiophenone, 1-phenyl-1,2-dibromo-perfluoro propane, 1-butyl perfluoro isobutylene, 1-styryl-perfluoro isobutylene, 1-ethylperfluoroisobutylene, 1-isoanylperfluoroisobutylene, anhydrous ammonia, ammonium hydroxide, ethyl amine, diethyl amine, and piperidine. The preparation of the compounds and their reactions are described in detail in the experimental part of the paper.) 1-alkyl- and 1-aryl perfluoro isobutylenes react with

Card 1/3

Reactions of Fluoro-olefins. 11th Report. Interaction of Compounds of the Perfluoro Isobutylene Series With Amines and Ammonia

nuclecphilic agents in two ways according to the following scheme:



Whether this reaction proceeds according to 1 or 2, depends on the character of the olefin as well as on the attacking reagent. Under the action of anhydrous NH_3 the reaction takes place in all perfluoro isobutylenes investigated. 1-alkyl- and 1-aryl perfluoro isobutylenes react with secondary amines according to Scheme 2. The action of excess NH_4OH eliminates fluorine completely. There are 5 references: 2 Soviet, 1 German, 1 American, and 1 Canadian

Reactions of Fluoro-o... ... Reports. Interaction of Compounds of the Perfluoro Isobutylene Se... ... With Ar...

S/062/60/000/02/03/012
B003/B066

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: July 4, 1958

Card 3/3

German, L. S.

B20h1
S/062/60/000/02/04/012
B003/B066

5.3600
AUTHORS: Knunyants, I. L., Dyatkin, B. L., German, L. S., Mochalina, Ye. P.

TITLE: Reactions of Fluoro-olefins. 12th Report. Interactions of Polyfluoro-chloro Butenes With Alcohols

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, No. 2, pp. 231 - 236

TEXT: The authors investigate the action of sodium methylate and ethylate on linear dimers of 1,2-difluoro-1,2-dichloro ethylene and trifluoro-chloro ethylene. The experiment is described in detail in the experimental part of the paper. The structure was clarified by means of infrared spectrography. The investigations revealed that the reaction of 1,2,3,4-tetrafluoro-1,3,4,4-tetrachloro butene-1 with the alcoholates mentioned yields 1,1,1-trialkoxy-2,3,4-trifluoro-4,4-dichloro butene-2. When treating the linear dimer of trifluoro-chloro ethylene with the alcoholates, 3-alkoxy-4-chloro-perfluoro butene-1 results. The linear dimer of trifluoro-chloro ethylene was identified to be a mixture of

Card 1/2

Reactions of Fluoro-chl... ... Reg... I
Interactions of Polyfluoro-chl... o Buten... I
With Alcohols

S/062/60/000/02/04/0[illegible]
B003/B066

3,4-dichloro-perfluoro butene-1 and 1,4-dichloro-perfluoro butene-2 (with the latter being predominant). There are 17 references: 4 Soviet, 10 American, 1 Belgian, and 1 German.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Elemental-organic Compounds of the Academy of Sciences USSR)

SUBMITTED: July 4, 1958 (initially)
July 31, 1959 (after revision)

Card 2/2

KNUNYANTS, I.L.; GERMAN, L.S.; DYATKIN, B.L.

α-Bromoperfluoroisobutyric acid and its derivatives. Izv. AN SSSR. Otd.khim.nauk no.8:1513-1514 Ag '61. (MIRA 14:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Isobutyric acid)

KNUNYANTS, I.L.; GERMAN, L.S.; DYATKIN, B.L.; MOCHALINA, Ye.P.

Condensation of 1,2-difluoro-1,2-dichloroethylene with formaldehyde.
Zhur.VKHO 6 no.1:114 '61. (MIRA 14:3)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR.
(Ethylene) (Formaldehyde)

KNYNYANTS, I.L.; GERMAN, L.S.; ROZKHOV, I.N.

Pyrolytic reactions of trifluoroethylene. Izv.AN SSSR.Otd.khim.nauk no.9:1674-1676 S '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Ethylene) (Flourine compounds) (Pyrolysis)

KNUNYANTS, I.L.; DYATKIN, B.L.; GERMAN, L.S.; MOCHALINA, Ye.P.

Condensation of formaldehyde with trifluoroethylene. Izv.AN SSSR.Otd. khim.nauk no.9:1676-1677 S '62. (MIRA 15:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Formaldehyde) (Ethylene) (Chlorine compounds)

KNUNYANTS, I.L.; GERMAN, L.S.; ROZHKOV, I.N.

Aliphatic fluoronitro compounds. Report No.1: Conjugated nitrofluorination of olefins. Izv. AN SSSR. Ser. khim. no.11: 1946-1950 N '63.

Aliphatic fluoronitro compounds. Report No.2: Preparation of α-fluorocarboxylic acids. Ibid.:1950-1951 (MIRA 17:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

KNUNYANTS, I.L.; GERMAN, L.S.; FOKIN, I.N.

Aliphatic fluoronitro compounds. Report No.3: Fluorine-containing nitro alcohols and ethers. Izv.AN SSSR.Ser.khim. no.9:1630-1634 S '64. (MIRA 17:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

GERMAN, L.S.; ROZHKOV, I.N.; KNUNYANTS, I.L.

Nitrofluorination of ethylene and monofluoroacetic acid.
Zhur.VKHO 10 no.5:599-600 '65.

(MIRA 18:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

GERMAN, L.K.; [illegible], I.I., akademik

Hydroformylation reaction. Izv. AN SSSR. Ser. khim. no.7:[illegible] Jl '66. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
Submitted July 21, 1965.

ACC NR: AP6019737 SOURCE CODE: UR/0079/66/036/003/0356/0358

AUTHOR: German, L. S.; Fainyants, I. L.

ORG: Institute of Organoelemental Compounds, Academy of Sciences SSSR (Institut elementoorganicheskikh soyedineniy akademii nauk SSSR)

TITLE: Reactions in anhydrous hydrogen fluoride. Synthesis of fluorine containing simple and complex esters

SOURCE: Vses khim obshch. Zh, v. 11, no. 3, 1966, 356-358

TOPIC TAGS: ester, esterification, fluorinated organic compound, chlorinated organic compound

ABSTRACT: Several simple fluorine-containing esters were synthesized from 1,1-difluoro-ethylene alcohol and formaldehyde in HF-solvent. The complex esters were synthesized from 1,1-difluoroethylene (or 1,1-dichloroethylene), acetic acid and formaldehyde in HF-solvent. Boiling points, refractive indices, densities, yields, data on elementary analyses, and NMR spectral data for the product esters, are presented in tabular form. In a typical synthesis example, 0.2-0.3 mol of alcohol (or acetic acid) were added within 1-1.5 hours to a 15% solution of paraformaldehyde in HF at 0 to -5°C. After 2-3 hr, the excess of HF was driven off by evaporation and the reaction mixture was separated from ice, neutralized with ammonium carbonate and extracted with diethyl ether or distilled off. Orig. art. has: 1 table, 3 formulas.

SUB CODE: 07/ SUBM DATE: 24Dec65/ ORIG REF: 002/ OTH REF: 001

UDC: 547.221/547.29

Card 1/1 hs

L 05170-67 EWT(m)/EWP(j) WW/JW/RM

ACC NR: AT7000730 SOURCE CODE: UR/0062/66/000/006/1062/1065

KNUNYANTS, I. L., GERMAN, L. S., ROZHKOV, I. N., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

"Aliphatic Fluoronitro-Compounds. Communication 5. Proton Magnetic Resonance Spectra and Ionization Constants of Polyfluoronitroalkanes"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya (News of the Academy of Sciences USSR, Chemical Series), No 6, 1966, pp 1062-1065

Abstract: The proton magnetic resonance spectra of 15 different nitroalkanes were studied to evaluate the degree of shielding of the hydrogen atom in the alpha-position to the nitro-group. The introduction of fluorine atoms into the nitroalkane molecule, like that of other electronegative groups, leads to a shift in the signal of the alpha-hydrogen in the proton magnetic resonance spectrum into the region of a weaker field. The change in the chemical shift of the alpha-hydrogen upon the introduction of electronegative substituents into the nitroalkane molecule, with the exception of fluorine atoms, is correlated with the change in the ionization constants of these compounds. The absence of correlation for fluorine substituents is explained by the fact that the proton magnetic resonance spectrum characterizes the influence of substituents in the static state of the molecule, whereas the ionization constant characterizes the state of dynamic equilibrium of the process of acid-base conversion

UDC: 543.422 + 661.723-16 + 541.67

Card 1/2

of the nitro-compound. The insertion of fluorine atoms in the beta-position to the nitro-group increases the chemical shift of the alpha-hydrogen in the proton magnetic resonance spectrum and simultaneously the ionization constant of the nitro-compound. Insertion of fluorine into the alpha-position increases the chemical shift of the alpha-hydrogen but decreases the ionization constant. Orig. art. has: 3 formulas and 1 table. [JPRS: 37, 023]

TOPIC TAGS: fluorinated organic compound, organic nitro compound, proton resonance

SUB CODE: 07 / SUBM DATE: 08Aug64 / ORIG REF: 004 / OTH REF: 005

L 05169-67 EWT(m)/EWP(j)/EWP(t)/ETI IJP(c) JD/WW/JW/RM
ACC NR: AP7000731 SOURCE CODE: UR/0062/66/000/006/1065/1069

KNUNYANTS, I. L., GERMAN, L. S., Institute of Heteroorganic Compounds, Academy of Sciences USSR (Institut elementoorganicheskikh soyedineniy AN SSSR)

"Reactions in Anhydrous Hydrogen Fluoride. Communication 1. Conjugated Halogenation of Olefins"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, 1966, pp 1065-1069

Abstract: A method was developed for synthesizing fluorochloroalkanes by conjugated chlorination of olefins in anhydrous hydrogen fluoride. In the reaction of ethylene with chlorine in anhydrous hydrogen chloride at -20 to 30°, together with the addition of chlorine at the double bond there is a conjugated "chlorofluorination" of ethylene, forming 1,2-chlorofluoroethane. Chlorination of vinylidene chloride proceeds analogously. In the reaction of olefins with hexachloromelamine and hydrogen fluoride at atmospheric or somewhat higher pressure, chlorofluorination products are formed in yields as high as 60-65%. Conjugated addition of chlorine and fluorine was carried out with ethylene propylene, cyclohexene, vinylidene chloride and fluoride, and methyl acrylate. The beta-chloroethyl cation formed in the chlorination of ethylene can attack benzene electrophilically to yield beta-chloroethylbenzene. No such electrophilic attack occurred in the chlorination of vinylidene chloride in the presence of benzene. Orig. art. has: 6 formulas. [JPRS: 37,023]

TOPIC TAGS: olefin, halogenated organic compound, vinyl compound
SUB CODE: 07 / SUBM DATE: 25Jan65 / ORIG REF: 003 / OTH REF: 007
Card 1/1 vmb UDC: 542.95 + 661.723-16

ACC NR: AP6032902 SOURCE CODE: UR/0062/66/000/009/1575/1581

AUTHOR: Podol'skiy, A. V.; German, L. S.; Knunyants, I. L.

ORG: Institute of Organometallic Compounds, Academy of Sciences, SSSR (Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR)

TITLE: Reactions in anhydrous hydrogen fluoride. Report No. 5, Fluoroaminomethylation and fluoroacylaminomethylation of haloolefins

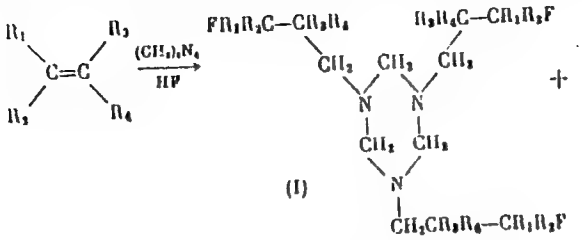
SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 9, 1966, 1575-1581

TOPIC TAGS: olefin, hydrogen fluoride, fluorinated organic compound

ABSTRACT: Experiments have shown that urotropin in the presence of HF readily condenses with vinylidene chloride, vinylidene fluoride and trifluoroethylene under very mild conditions (5-20°, atmospheric pressure). With tetrafluoroethylene, the reaction can take place at 50° only under pressure. The main reaction products are the corresponding symmetrical N-fluoroalkyl-substituted hexahydrotriazines (Ia-d) and propylamines (IIa-d).

Card 1/3 UDC: 542.91+547.233+661.723-16

ACC NR: AP6032902



(I)

+ $FR_1R_2C-CR_3R_4-CH_2NH_2$ (II)

a) $R_1 = R_2 = Cl$; $R_3 = R_4 = H$ c) $R_1 = R_2 = R_3 = F$; $R_4 = H$
b) $R_1 = R_2 = F$; $R_3 = R_4 = H$ d) $R_1 = R_2 = R_3 = R_4 = F$

It was also found that methylolacetamide in HF reacts with the above haloolefins at room temperature (tetrafluoroethylene requires heating) to yield acetyl derivatives of the corresponding propylamines (IIIa-d). The same products were obtained by reverse synthesis

$$CH_3CONHCH_2OH + R_1R_2C=CR_3R_4 \xrightarrow{HF} FR_1R_2C-CR_3R_4CH_2NHCOCH_3 \xrightarrow[CH_3COOH]{(CH_3CO)_2O} FR_1R_2C-CR_3R_4-CH_2NH_2$$

(III)

a) $R_1=R_2=Cl$; $R_3=R_4=H$ c) $R_1=R_2=R_3=F$; $R_4=H$
b) $R_1=R_2=F$; $R_3=R_4=H$ d) $R_1=R_2=R_3=R_4=F$

Card 2/3

ACC NR: AP6032902

Authors thank E. I. Fedin and P. V. Petrovskiy for taking and interpreting the spectra. Orig. art. has: 1 table.

SUB CODE: 07/ SUBM DATE: 15Apr66/ ORIG REF: 013/ OTH REF: 001

Card 3/3

S/882/62/000/001/018/100
A057/A126

AUTHORS: Dyatkin, B.L., Knunyants, I.L., German, L.S., Mochalina, Ye.P.

TITLE: A method for the preparation of α-fluoro-α, β-dihalogenpropionic acids

SOURCE: Sbornik izobreteniy; plastmassy i sinteticheskiye smoly. no. 2. Kom. po delam izobr. i otkrytiy. Moscow, TsNTI, 1962, 13 [Author's certificate no. 128459, cl. 12o, 11 (appl. no. 642346 of October 27, 1959)]

TEXT: By the present method relatively high yields of the product can be obtained by condensating 1,2-difluoro-1,2-dichloroethylene with paraform in the presence of fluorosulfuric acid and subsequently treating the reaction mixture with water and alkali metal halogenides. 0.3 mole paraform is added to a mixture of 0.25 mole 1,2-difluoro-1,2-dichloroethylene and 0.75 mole fluorosulfuric acid under stirring it for 2 h, with subsequent heating on a water bath for 1.5 - 2 h, addition of 100 ml water, 150 g KBr and boiling during 5 h with a reflux condenser. The reaction mixture is filtered after cooling, the precipitate washed with

Card 1/2

A method for the preparation of ....

S/882/62/000/001/018/100
A057/A126

ether, the aqueous layer neutralized with a soda excess and then treated with the ether extract. Later the aqueous layer is acidified with conc. H_2SO_4 or HCl and treated with ether. The extract is dried with $MgSO_4$, the ether is distilled off, and the residue distilled in a vacuum. Thus α-fluoro-α-chloro-β-bromopropionic acid with a boiling point of 80 - 85°C at 2 torr and 50 - 55% of theoretical yield, and α-fluoro-α-chloro-β-hydroxypropionic acid with a boiling point of 125 - 130°C at 2 torr and 15 - 20% of theoretical yield is obtained. If instead of KBr KCl is used for the treatment of the primary products, then α-fluoro-α, β-dichloropropionic aicd is obtained with 40 - 50% of theoretical yield and a boiling point of 100°C at 20 torr. The patent was sent to the Goskomitet SM SSSR po khimii (Goskomitet CM USSR for Chemistry) for testing and use.

[Abstracter's note: Complete translation]

Card 2/2

S/882/62/000/002/012/100
A051/A126

AUTHORS: Knunyants, I. L., German L. S., Dyatkin, B. L., Mochalina, Ye. P.

TITLE: Production method for α-fluoro-α-chloro-β-oxypropionic acid

SOURCE: Sbornik izobreteniy; plastmassy i sinteticheskiye smoly. no. 2. Kom. po delam izobr. i otkrytiy. Moscow, TsBTI, 1962, 10, [Author's certificate no. 128460, cl. 12o, 11 (appl. no. 642347 of October 27, 1959)

TEXT: The outstanding feature of the method is the condensation of 1,2-difluoro-1,2-dichloroethylene with paraform in the presence of chlorosulfanic acid under atmospheric pressure and mild temperature conditions. 0.3 mol of paraform is added while mixing over a period of 1.5 hrs to a mixture of 0.2 mol of 1,2-difluoro-1,2-dichloroethylene and 0.34 mol of chlorosulfanic acid. Then, the mixture is left to stand for 2 hrs at room temperature and, further, it is heated in a water bath for 4.5 hrs. The obtained reaction mass is decomposed while cooling by gradual addition of 100 ml of concentrated hydrochloric acid and 75 g of potassium chloride, after which it is heated to the boiling point for 5 hrs. The

Production method for...

S/882/62/000/002/012/100
A051/A126

cooled mixture is filtered, the residue washed with ether, and the filtrate neutralized with a solution of sodium carbonate and processed with an ether extract. The processed filtrate is then again acidified with hydrochloric acid and repeatedly extracted with ether. The ether extract is dried with magnesium sulfate and, after distilling the ether, it is subjected to vacuum distillation at 125 - 130°C and 3 mm Hg. The yield of the obtained α-fluoro-α-chloro-β-oxypropionic acid is 60%.

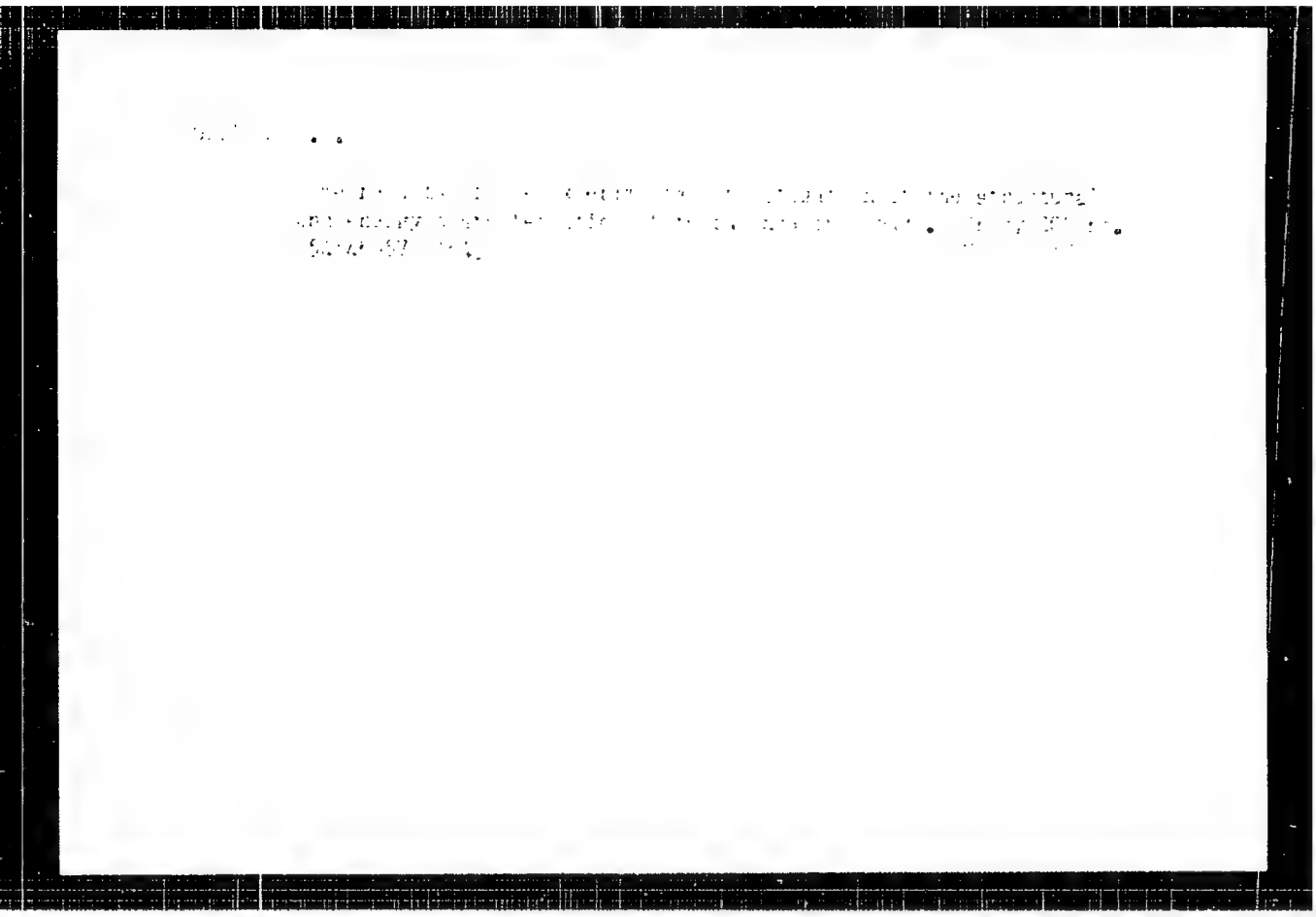
[Abstracter's note: Complete translation]

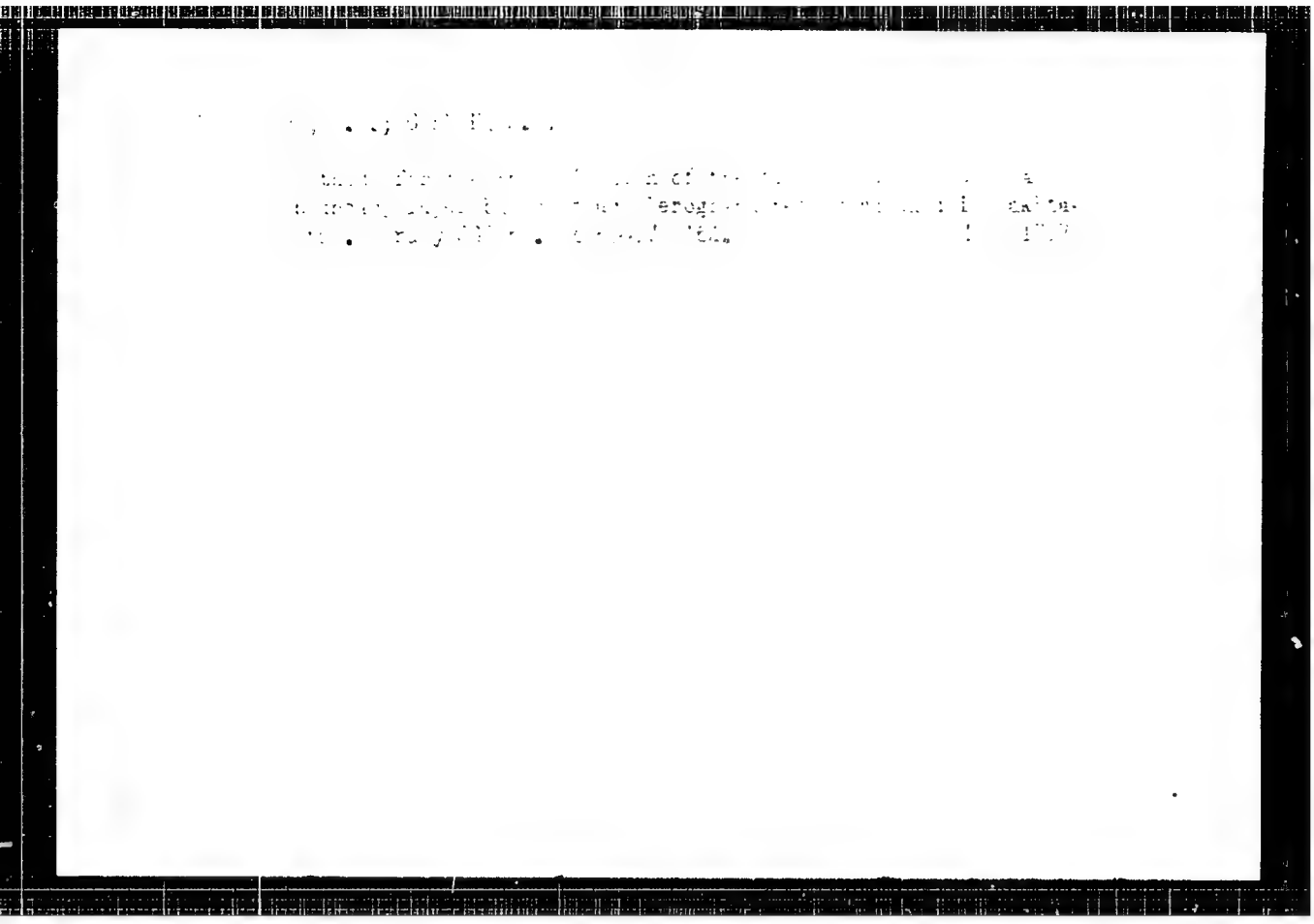
Card 2/2

KOTOV, V.T., prof.; GERMAN, L.S., assistent; ARTEMOV, V.T., assistent

Ring test with blood serum for diagnosing brucellosis. Veterinariia 37 no.3:84-86 Mr '60. (MIRA 16:6)

1. Voronezhskiy zootekhnicheskо-veterinarnyy institut.
(Brucellosis)





POGORELOV, Nikolay Semenovich, kand.ekon.nauk; PANCHENKO, N.F., dotsent, otv.red.; GERMAN, M.A., red.; KHOKHANOVSKAYA, T.I., tekhred.

[State farms as the highest form of agricultural organization under socialism] Sovkhozy kak vysshaia forma organizatsii sel'skogo khoziaistva pri sotsializme. Izd-vo Kievskogo gos. univ., 1958. 133 p. (MIRA 12:4)
(State farms)

TARASENKO, Vasiliy Akimovich; SUYARKO, L.A., kand.istor.nauk, otvetstvennyy red.; GERMAN, M.A., red.; KHOKHANOVSKAYA, T.I., tekhn.red.

[Atomic problem in the foreign policy of the United states, 1945-1949] Atomnaia problema vo vneshnei politike SShA (1945-1949 gg.). [Kiev] izd-vo Kievskogo gos.univ. im. T.G.Shevchenko, 1958. 243 p. (MIRA 11:7)
(United States-- Foreign relations)
(Atomic weapons)

L 5021-66 EWT(1)/FCC GW

ACC NR: AT5024880 SOURCE CODE: UR/2531/65/000/171/0003/0019

AUTHORS: Vorontsov, P. A.; German, M. A.

ORG: Main Geophysical Observatory, Leningrad (Glavnaya geofizicheskaya observatoriya)

TITLE: Studying atmospheric turbulence with the aid of a helicopter

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 171, 1965. Rezul'taty issledovaniya atmosfernoy turbulentnosti na vertoletnykh trassakh (Results of the investigation of atmospheric turbulence on helicopter routes), 3-19

TOPIC TAGS: helicopter, flight characteristic, weather forecasting, atmosphere, wind, atmospheric turbulence,/ SP 11 overload register, MI 1 helicopter, MI 4 helicopter

ABSTRACT: The use of helicopter types MI-4 and MI-1 in studying atmospheric turbulence is described. The advantages of helicopters over fixed-wing craft in atmospheric research are briefly discussed. Loads acting on a helicopter are described in relation to the coordinate system shown in Fig. 1, where the origin

Card 1/4

L 5021-66
ACC NR: AT5024880

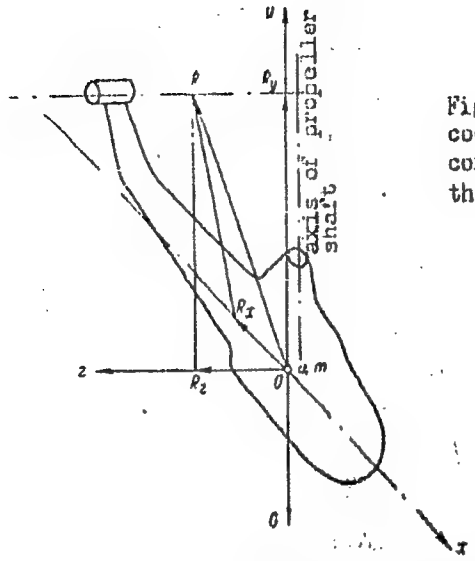


Fig. 1. System of coordinate axes correlated with the helicopter

of coordinates as to the center of gravity of the helicopter. In this system an external force acting on the helicopter results in overloads in the coordinate

Card 2/4

directions which are given by $n_y = \frac{R_y}{G}$, $n_x = \frac{R_x}{G}$, $n_z = \frac{R_z}{G}$.

The helicopter in an arbitrary flight attitude is sketched as a free body for the purpose of relating geometry and force variables. Expressions for resultant rotor aerodynamic forces, drag resistance forces, propulsion forces, and gravity are included. The given force and geometric quantities are then related to the dimensionless overload parameters. Two modes of helicopter flight are defined: suspended flight is flight in which the center of gravity of the craft is fixed with respect to the air mass medium and there is no rotation of the craft about the center of gravity; horizontal flight is termed stationary when translational acceleration is zero and nonstationary otherwise. The effects of atmospheric turbulence on both suspended and horizontal flight modes are developed, and the aerodynamic forces generated by the rotor blades are derived. The computation of vertical downdraft characteristics from flight control parameters and accelerograph data is demonstrated and tabulated for both airplanes and helicopters. Computation of turbulence coefficient follows the algorithm of M. A. Derman (O turbulentnom obmene v oblakakh. Meteorologiya i gidrologiya, No. 10, 1953). The

L 5021-66
ACC NR: AP5024886

results of experiments performed in August 1962 for the purpose of obtaining characteristics of air currents along the Simferopol'-Yalta route are tabulated and discussed. An Mi-4 helicopter and an SP-11 overload register were used in the tests. Orig. art. has: 16 tables, 4 figures, and 25 equations.

SUB CODE: ES, AC / SUBM DATE: 00/ ORIG REF: 006/ OTH REF: 000

Card 4/4

S/169/62/000/009/089/120
D228/D307

3.5710

AUTHORS: German, M. A., Mazurin, N. I. and Solonin, S. V.

TITLE: Question of flight conditions in cirri

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 9, 1962, 70, abstract 9B426 (Tr. Leningr. gidrometeorol. in-ta, no. 12, 1961, 163-167)

TEXT: Ananylsis of the data of exploratory flights by TY-104 (TU-104) aircraft in July - August 1958 and August - September 1960 over the USSR's European part, East Siberia, and the Far East -- and also of routine flights on the air routes Leningrad-Moscow, Leningrad-Kiyv, and Leningrad-Sverdlovsk -- showed that, when the middle or lower layer is cloudy, cirri have a greater vertical extent than if clouds are absent. When the middle or lower layer is cloudy, the average vertical extent of cirri comprises 2700 m on a warm, 2300 m on a cold, and 2600 m on an occluded front; if there are no lower or middle clouds, it comprises 2500, 1200, and 2100 m respectively. The mean vertical extent of frontal cirri depends on

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Question of flight ...

the latitude. On a warm front it increases from 1600 m at 40 - 50°N to 3300 m at 51 - 55°N and then decreases to 1800 m at 61 - 65°N. On a cold front in the same latitudes the average vertical extent of cirri comprises 1400, 2200, and 1400 m respectively. The average bump frequency in clouds amounts to 72%. In different forms of cirri, including those of jet streams, the overloads vary from 0.01 to 0.60 g in the warm season. The maximum overload frequency falls on the gradation 0.01 - 0.10 g. Overloads of from 0.2 to 0.6 g are recorded in the cirri of jet streams. In cirro-strati bumping is most intensive at the upper and lower boundaries. The bump layer's average thickness in the upper layer's clouds comprises 200 - 600 m, the maximum being 1500 m. The mean values of turbulence factors in different forms of cirri are given, as is the relation between the characteristic scale of turbulent movements and the difference of the humid-adiabatic and vertical temperature gradients; it testifies to the fact that the dimension of the elements of turbulence grows as the instability of atmospheric stratification increases. 4 references. [Abstracter's note: Complete translation.]

Card 2/2

GERMAN, M.A.

Turbulent exchange in clouds. Meteor. i gidrol. no.10:15-21 O '63.
(MIRA 16:11)

1. Leningradskiy gidrometeorologicheskiy institut.

GEGUIAN, M.A. ;DUBOV, A.S. (Leningrad)

"The aircraft as a means of atmospheric turbulence research".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - Feb 64.

ACCESSION NR: AT4043157 S/2531/64/000/154/0046/0057

AUTHOR: German, M. A.

TITLE: Some results of an experimental investigation of the structure -- energy characteristics of turbulence in clouds

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 154. Voprosy* fiziki atmosfery* (Problems in atmospheric physics), 46-57

TOPIC TAGS: meteorology, atmospheric physics, cloud, atmospheric turbulence, atmospheric turbulence coefficient, jet stream, accelerograph

ABSTRACT: This article discusses the principal results of computation of the structure-energy characteristics of turbulence in clouds. The computations were made on a "Ural-2" electronic computer. Data were obtained from accelerograph records of aircraft turbulence and temperature-wind sounding. The methods for processing the accelerograms and computing the structure-energy characteristics were described in earlier papers. A total of 305 cases was processed and analyzed, of which 289 cases were in clouds and 16 in the lower stratosphere. For the majority of cloud forms the initial data cover both half-years, and for St, Sc and Cu -- different geographical regions as well, especially the temperate

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ACCESSION NR: AT4043157

and Arctic latitudes. The computation method used in the paper made it possible to determine the spectral density for each case and to give a quantitative evaluation of the rate of dissipation of turbulent energy in different cloud forms and in the surrounding medium. Table 2 of the original gives the logarithms of the mean values of spectral density of turbulence in clouds of different forms for the warm and cold seasons. Figures 1 and 2 of the Enclosure show the energy spectra of vertical wind gusts in different cloud genera. It had been demonstrated earlier by the author (Tr. LGMI, No. 14, 1963) that the intensity of turbulence in clouds is dependent on season and velocity of air flow; the derived spectral density curves fully confirm these conclusions. Cumulonimbus clouds are an exception; the averaged turbulence spectrum for well-developed Cb in the warm season is displaced sharply in the direction of small values of space frequency. A study of the energy spectrum in jet stream clouds and outside them confirms that in cloud systems associated with jet streams a high degree of turbulence is characteristic. A study of the curves of spectral density of vertical wind gusts in clouds was made on the basis of 83 cases. The data show that turbulent energy changes in relatively broad limits. In most cases strong turbulent mixing corresponds to high values of the turbulence coefficient and large velocities of dissipation of turbulent energy. Weak mixing corresponds to small

Card

ACCESSION NR: AT4043157

values of turbulent energy. To a certain degree, the turbulent energy in a cloud is dependent on the position of the level relative to cloud boundaries. In comparing the turbulent energy values at different levels in a cloud it was found that there is a tendency to an increase in energy of dissipation with height and vice versa. It is shown that the rate of dissipation of turbulent energy is essentially dependent on the level of kinetic energy in the cloud layer. An estimate is made of the turbulent energy value for the surface layer. An expression is derived for making approximate computations of the rate of dissipation of turbulent energy. Orig. art. has: 16 formulas, 4 figures and 4 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 02

SUB CODE: ES NO REF SOV: 007 OTHER: 003

Card 3/5

ACCESSION NR: AT4043157

ENCLOSURE: 01

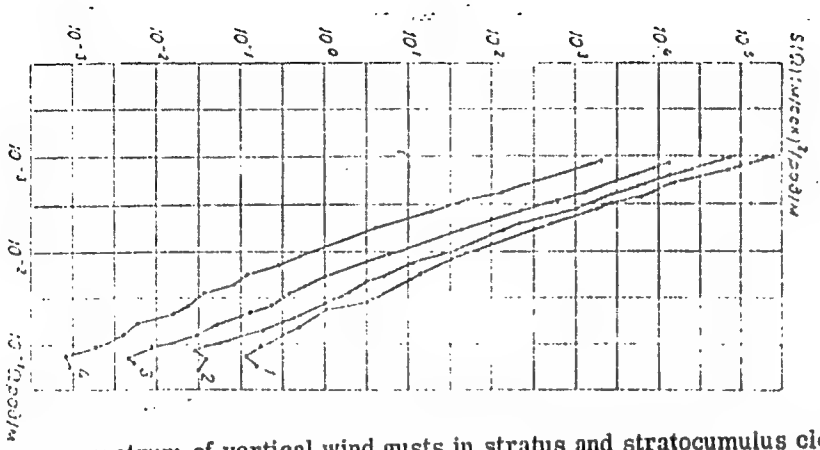

Fig. 1. Energy spectrum of vertical wind gusts in stratus and stratocumulus clouds in the temperate latitudes. Warm half-year; 1 — Sc, 3 — St; cold half-year: 2 — Sc, 4 — St.

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ACCESSION NR: AT4043157

ENCLOSURE: 02

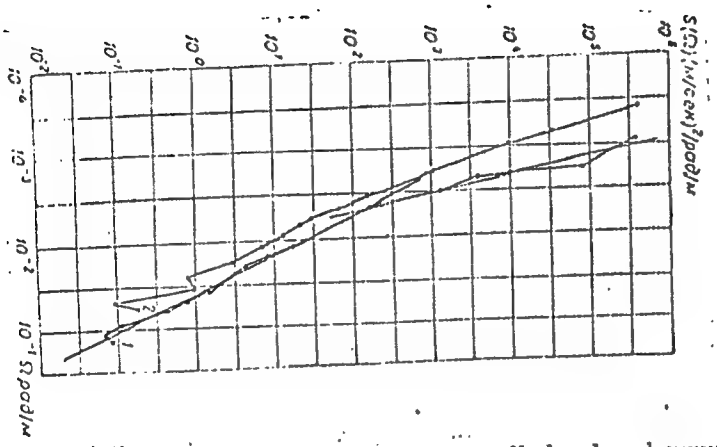

Fig. 2. Energy spectrum of vertical wind gusts in a well-developed cumulus cloud. 1 — cold half-year, 2 — warm half-year.

Card 5/5

ACCESSION NR: AT4043159 S/2531/64/000/154/0065/0077

AUTHOR: Vorontsov, P. A.(Doctor of geographic sciences); German, M. A.

TITLE: A method for investigating the turbulent regime of the boundary layer from accelerograph records at Pakhta-Aral

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 154. Voprosy* fiziki atmosfery* (Problems in atmospheric physics), 65-77

TOPIC TAGS: meteorology, atmospheric boundary layer, accelerograph, atmospheric turbulence

ABSTRACT: This article discusses a method for computing a number of characteristics of the structure of the air flow from aircraft accelerograph records. Computations were made with an electronic computer. The records of aircraft overloads were obtained largely during the Pakhta-Aral Expedition of the Glavnaya geofizicheskaya observatoriya (Main Geophysical Observatory) in 1952. The authors also determined the values of the coefficient of turbulent exchange more precisely. Only a sample of 12 cases out of 180 was used. Most flights were made on a PO-2 aircraft in the morning hours. The aircraft made horizontal flights at heights of 300, 500, 750 and 1,000 m above cotton fields, the

Card 1/3

ACCESSION NR: AT4043159

steppe and desert. Aircraft overloads were recorded with a ZP-11 accelerograph. Data are given on computation of the turbulence coefficient for flights over these underlying surfaces. For convenience in further analysis the turbulence energy spectrum was represented in the in the form of a set of curves, as shown in Fig. 1. of the Enclosure. There is a spread of the curves of the energy spectrum which can be attributed to the difference in the intensity of turbulent energy during flights over the different surfaces. With a decrease in the size of turbulent eddies (with an increase in space frequency) all the curves have a tendency to decrease. The individual peaks on the curves reflect the influence of vertical currents causing an energy increase in the spectrum. With an increase in scale of the eddies the intensity of energy transfer from eddies of one scale to eddies of a larger scale increases somewhat with respect to the high-frequency part of the spectrum. This is associated with the thermal stability of the investigated layer. The method described for determination of the spectral density of turbulent energy can be used in various investigations of the free atmosphere. Orig. art. has: 20 formulas, 5 figures and 5 tables.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 01

SUB CODE: ES NO REF SOV: 015 OTHER: 000

Card 2/3

ACCESSION NR: AT4043159

ENCLOSURE: 01

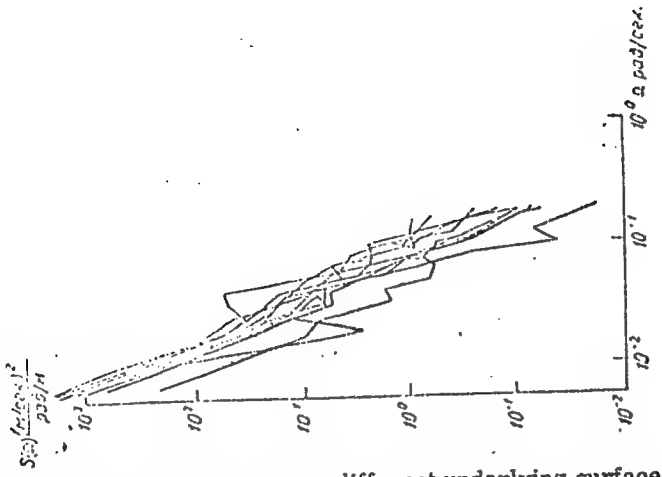

Figure 1. Turbulence energy spectrum over different underlying surfaces. Ordinate = $\frac{(\text{m/sec.})^2}{\text{rad./m}}$; abscissa = rad./sec.

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VORONTSOV, P.A.; GERMAN, M.A.; LUBOV, A.S.

Methodology and some results of an airborne exploration of turbulent exchange in the boundary layer of the atmosphere. Trudy GGO no.158: 77-83 '64. (MIRA 17:9)

L 65211-65 EWT(1)/FCC GW

ACCESSION NR: AP5019148 UR/0362/65/001/007/0670/0676
551.551

AUTHOR: Dubov, A. S.; German, M. A.

TITLE: Spectral density of vertical gusts of wind within clouds

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 7, 1965, 670-676

TOPIC TAGS: turbulent energy dissipation, wind gust, vertical wind, wind spectral density, cloud turbulence

ABSTRACT: Turbulent cloud states are still insufficiently understood. Practically all information available on the quantitative characteristics of turbulence in clouds has been collected by processing the accelerograms of the center of gravity of aircraft flying a fixed course. However, most of the earlier studies (see, e.g., A. S Dubov, Tr. GGO, no. 98, 1959; L. T. Matveyev, Izv. AN SSSR, ser. geofiz., no. 7, 1958; M. A. German, Meteorologiya i gidrologiya, no. 10, 1963) merely determined certain integral characteristics of the displacement of the air currents. The present paper deals with the distribution of the energy of vertical wind gusts extracted from the associated disturbances. Rather than stressing the similarities of the few existing data of this kind (see H. Press, M. T.

Card 1/2

L 65211-65

ACCESSION NR: AP5019148

Meadows, T. Hadbock, NACA report, no. 1272, 1956; G. N. Shur, Tr. TsAO, no. 43, 1962), it points out the underlying differences. The hope is that such differences will appear whenever the data correspond to different degrees of development of atmospheric turbulence. The authors analyzed the data from 12 flights carried out by various types of planes over the European and Asian parts of the Soviet Union and over the Arctic. The acceleration values at half-second intervals were fed into the "Ural-2" computer which evaluated the correlation function and the spectral densities of the center of mass accelerations. Results are in the form of graphs representing spectral densities of gusts at various geographic locations and in different types of clouds and the rates of dissipation of turbulent energy (compared with data from several other authors). The dissipation rates are compared with the Richardson numbers and the vertical shear of the wind. A table summarizes the rms value of gusts for various types of clouds. Orig. art. has: 1 formula, 5 figures and 3 tables.

ASSOCIATION: Leningradskiy gidrometeorologicheskiy institut (Leningrad Hydrometeorological Institute)

SUBMITTED: 21Oct64 ENCL: 00 SUB CODE: ES

NO REF SOV: 010 OTHER: 003

Card 2/2

VORONTSO[illegible]

[illegible] atmospheric turbulence by means of a helicopter. (MIRA 18:9)
[illegible] 360 no.1713-19 '65.

1. Glavnaya geofizicheskaya observatoriya im. A.I. Voyeykova, Leningrad.

L 2566-66 EWT(d)/EWT(l)/EWT(m)/EWP(w)/FCC EM/GW

ACCESSION NR: AT5024887 UR/2531/65/000/171/0081/0090

50
41
B+1

AUTHOR: German, M. A.

TITLE: Some results of investigating the turbulent system in mountainous regions of the Caucasus

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 171, 1965. Rezul'taty issledovaniya atmosfernoy turbulentnosti na vertoletnykh trassakh (Results of the investigation of atmospheric turbulence on helicopter routes), 81-90

TOPIC TAGS: orography, atmospheric turbulence, atmospheric stratification, helicopter/ MI 4 helicopter

ABSTRACT: Results are reported of 20 flights over the Adler-Gelendzhyk route to investigate the effects of atmospheric turbulence on helicopters. The information was gathered in response to the growing importance of helicopter transportation in mountainous regions where the use of airplanes is limited. Helicopter MI-4 was fitted with a modified automatic recorder SP-11. This instrument registered the helicopter's excess loading and changes of acceleration in various directions. Obtained accelerograms were supplemented by visual observations, temperature

Card 1/3

L 2566-66

ACCESSION NR: AT5024867

readings, and wind soundings. Analysis of these data showed that the wind system is the determining factor in the development of the atmospheric turbulence in the investigated region. The strong stratification of the boundary layer is also important. With increasing altitude, the atmospheric layers become more uniform, and the turbulence subsides, as illustrated in Fig. 1 on the Enclosure. Increase of the flight altitude when bumping occurs in lower layers seems desirable for passenger helicopter flights on this route. A number of calculations connected with this work were performed by N. I. Kuznetsova. A. N. Naroznyy and the author participated in all of the flights. Orig. art. has: 3 figures, 8 tables, and 3 formulas.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 ENCL: 01 SUB CODE: ES, AC

NO REF SOV: 004 OTHER: 000

Card 2/3

L 2566-66
ACCESSION NR: AT5024887

ENCLOSURE: 01

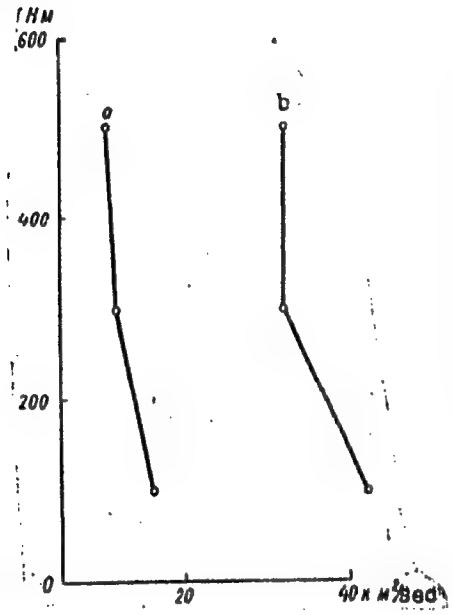

Fig. 1. Average vertical profile of the turbulence coefficient from the accelerographic data: a- average values of the turbulence coefficient, b- average maximal values of the turbulence coefficient

Card 3/3

L 06547-67 EWT(1) GW
ACC NR: AT6021520 SOURCE CODE: UR/2531/66/000/187/0221/0231

AUTHOR: German, M. A.; Tarakanova, V. P.

ORG: none

TITLE: Results of comparing the characteristics of steady-state turbulence in jet streams, calculated by various methods

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 187, 1966, Fizika pogranichnogo sloya atmosfery (Physics of the atmospheric boundary layer), 221-231

TOPIC TAGS: atmospheric turbulence, jet stream, ~~meteorology~~, aircraft bumping, wind speed, free atmosphere, thermodynamics

ABSTRACT: A method is presented for evaluating the characteristics of turbulence in jet streams, based on previous theoretical investigations by D. L. Laykhtman and V. A. Shnaydman, who used data from temperature and wind sounding. Additional data included measurements of the vertical component of fluctuations in wind velocity obtained during 20 special research flights by fast airplanes near Moscow and Leningrad in 1954—1957. The temperature and wind sounding data were selected to correspond in time and height with the data obtained from airplane

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flights, limiting the study to only 12 cases. Previously derived theoretical formulas and three nomograms (presented in the original article) were used with the sounding data to compute the vertical component of wind gustiness w' for all of these cases. Accelerograph records made it possible to compute and tabulate the average and maximum values of w'. A correlation field was constructed to test the relationship between the vertical wind-velocity fluctuations computed by different methods. The correlation coefficient between different values of w' proved to be quite high—about 0.72 with a probable error of ± 0.07. Investigations were made of the Vaisala parameter

$$\lambda = \sqrt{\frac{g}{T}(\gamma_a - \gamma)}$$

for the relationship between w' and atmospheric stability, the vertical gradient of the wind velocity vector for the relationship between w' and the dynamic factor, and the Richardson number. However, no definite relationship was noted. It is concluded that a parameter which is more general than the Richardson number should be used in seeking the relationships between the characteristics of turbulence and the thermodynamic state of the free atmosphere. Orig. art. has: 4 figures, 6 formulas, and 6 tables. [EO]

SUB CODE: 04/ SUBM DATE: none/ ORIG REF: 012/

GERMAN, M.E.; KUBASOV, G.M., red.; SAYTAMIDI, L.D., tekhn.red.

[Experience in changing contract conditions between machine-tractor stations and collective farms; experience of the Vygonichi Machine-Tractor Station and the "Leninskii Put'" Collective Farm in Bryansk Province] Iz opyta nekotorykh izmenenii dogovornykh otnoshenii MTS s kolkozami; opyt Vygonicheskoi MTS s kolkhozom "Leninskii put'" Brianskoi oblasti. [Moskva, Izd-vo M-va sel' khoz. RSFSR, 1957] 8 p. (MIRA 11:3)

1. Direktor Vygonicheskoy mashinno-traktornoy stantsii (for German)
(Bryansk Province--Machine-tractor stations)
(Bryansk Province--Collective farms)

S/196/62/000/014/034/046
E194/E155

AUTHORS: Dorfman, L.Ya., and German, M.I.

TITLE: Design of hearth burners

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.14, 1962, 11, abstract 14 G 70. (Gaz. prom-sti, no.1, 1962, 23-27).

TEXT: It is recommended that the slots in the fire-resistant lining of hearth burners should be made straight and up to 200 mm high; for water-heating boilers the dimensions of the gas apertures arranged symmetrically about a vertical axis should not exceed 90-100°. The gas aperture diameter is determined from the following formula:

$$d = \sqrt{Q_{nom} S \cdot 10^6 / (m \cdot t_{con} \eta Q_H^c \cdot 1.57\mu \sqrt{2gh/\gamma} \cdot 3600)}$$

where: Q_{nom} - the nominal thermal rating of the boiler, kcal/hour;
S - the aperture pitch, mm;
m - the number of burner tubes on the boiler;

Card 1/2

Design of hearth burners

S/190/62/000/014/034/046
E194/E155

l_{con} - the conventional length of the perforated part of the burners;
η - boiler efficiency;
Q_H^c - the calorific value of the gas, kcal/m^3 (at n.t.p.)
μ - a flow factor taken as 0.5-0.7;
g - 9.81 m/sec^2;
h - gas pressure, mm water;
γ - specific weight of gas, kg/m^3 (at n.t.p.).

The number of gas apertures is determined from the formula $n = 2 l_{con}/S$. Nomograms are given to determine the parameters of hearth burners, with a worked example.

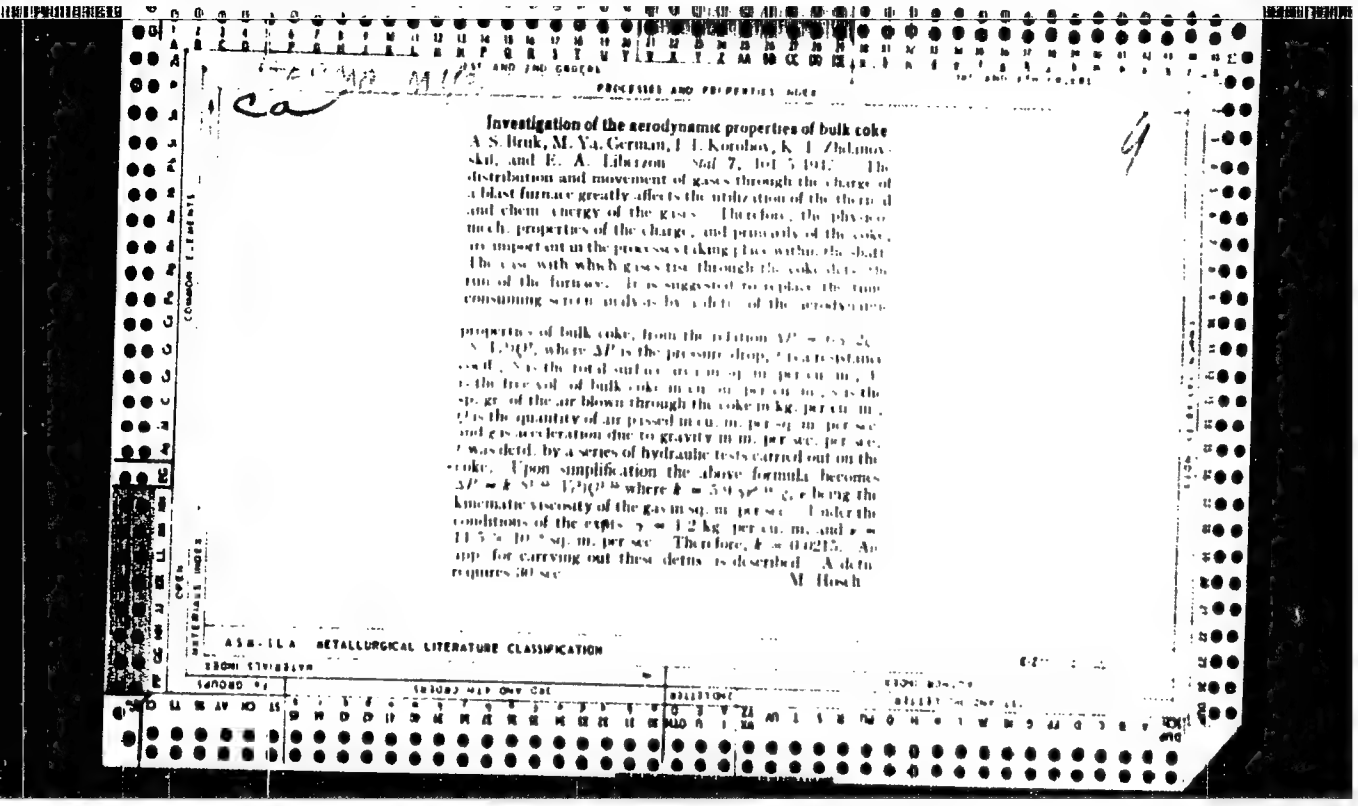
[Abstractor's note: Complete translation.]

Card 2/2

GERMAN, M.I.; FEDOT'YEV, P.V., inzh.

Improvement of semiautomatic block system apparatus with polarized line networks. Avtom., telem.i sviaz' 6 no.11:43 N '62.
(MIRA 15:11)

1. Veduschiy konstruktor zavoda "Transsignal" (for German).
(Railroads--Signaling--Block system)



PROCESSES AND PROPERTIES INDEX

Investigation of the aerodynamic properties of bulk coke

A. S. Bruk, M. Ya. German, I. I. Korobov, K. I. Zhdanovskii, and E. A. Libarzon *Stal'* 7, [illegible] 5 [illegible]. The distribution and movement of gases through the charge of a blast furnace greatly affects the utilization of the thermal and chem. energy of the gases. Therefore, the physico-mech. properties of the charge, and primarily of the coke, are important in the processes taking place within the shaft. The case with which gases rise through the coke charge determines the run of the furnace. It is suggested to replace the time-consuming screen analysis by a study of the aerodynamic properties of bulk coke, from the relation $\Delta P = k S^{1.5} Q^2$, where ΔP is the pressure drop, a characteristic coeff., S is the total surface area of the pieces per cu. m., i. e. the free vol. of bulk coke in cu. m. per cu. m., s is the sp. gr. of the air blown through the coke in kg. per cu. m., Q is the quantity of air passed in cu. m. per sq. m. per sec., and g is acceleration due to gravity in m. per sec. per sec., ν was detd. by a series of hydraulic tests carried out on the coke. Upon simplification the above formula becomes $\Delta P = k S^{1.5} \nu^{0.5} Q^2$ where $k = 5.9 s^{0.5} / g$, being the kinematic viscosity of the gas in sq. m. per sec. Under the conditions of the expts. $s = 1.2$ kg. per cu. m., and $\nu = 13.5 \times 10^{-6}$ sq. m. per sec. Therefore, $k = 0.0215$. An app. for carrying out these detns. is described. A detn. requires 30 sec.

M. Hosch

ASM-ILA METALLURGICAL LITERATURE CLASSIFICATION

F M

F

1037. GASIFICATION OF WASHERY REFUSE. German, M.Ya. and Karasik, A.I. (Za Ekon. Toplivo (Fuel Econ.), Aug. 1951, 13-15). A record is given of a successful experiment on the use of 80% refuse and 20% coke fines in a gas producer. The refuse contained 30 to 35% combustible material. 1 to 2% lime was added to the charge to make the slag porous and easy to break up. (L).

Translation W-20775, 15 Dec 51

GERMAN, M. YA.

(2) Fuel

Fuel Abst.
Vol. 15 No. 4
Apr. 1954
Steam Raising and
Steam Engines

3046. EXPERIMENTAL BURNING OF WASTE FROM COAL PREPARATION. German, M.Ya. and Karasik, I.I. (Elekt. Sta., (Pwr Sta., Moscow), Apr. 1953, 9-11). Experimental consumption of mixtures of tailings with the commercial product was carried out in the combustion chamber of an horizontal water-tube boiler of 25 tons/h capacity. The methods used are described and a detailed analysis is given of the fuel and results of combustion.

R.E.A.

USSR/Chemical Technology. Chemical Products and Their Applications- Treatment of solid mineral fuels I-13

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9230

Author : German, M. Ya. and Karasik, I. I.
Inst : Dnepropetrovsk Chemical Engineering Institute
Title : The Utilization of Coal-Treatment Wastes in Gasification

Orig Pub: Tr. Dnepropetr. khim.-tekhnol. in-ta, 1955, No 4, 157-161

Abstract: The results from experiments with the gasification of wastes from coal treatment operations (shale tailings) in gas generators of 2.6 m diameter are presented. The wastes containing about 30% of combustible substances and 50-55% ash have been gasified with a steam-air blow with the addition of 20% coke dust (a waste product from the manufacture of coke) and 2% CaO (to reduce slagging and to break up the slag). The gas yield is

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USSR/Chemical Technology. Chemical Products and Their Applications--Treatment of solid mineral fuels I-13

Abs Jour: Ref Zhur-Khimiya, № 3, 1957, 9230

Abstract: 1.71 m^3 per kg of fuel; the heating value of the gas produced is 1[illegible] kcal per m^3. The authors present suggestions on the utilization of waste materials produced during coal treatment as a local fuel for gasification purposes.

Card 2/2

GERMAN, M. Ya., kand.tekhn.nauk

Connection between the aerodynamic index of the physical and mechanical qualities of coke and the operation of the blast furnace. Trudy Inst.tepl.AN URSR no.10:83-88 '53. (MIRA 13:5)
(Blast furnaces) (Coke)

SOV/124-57-5-5819

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 5, p 113 (USSR)

AUTHOR: German, M. Ya.

TITLE: The Relationship Between the Hydraulic Resistance Offered by a Layer of Metallurgical Coke and Its Grain-size Composition (Zavisimost' gidravlicheskikh soprotivleniy sloya domennogo koksa ot sitovogo sostava)

PERIODICAL: Tr. Dnepropetr. khim.-tekhnol. in-t, 1955, Nr 4, pp 162-168

ABSTRACT: The author evolves the well-known formulae for estimation of the hydraulic resistance that is encountered by a gas filtering through a layer of irregular-shaped solid particles. The results are given of an experiment of the author's wherein a gas was blown through a layer of metallurgical coke. The empirically determined power ratio of the hydraulic-resistance coefficient to the Reynolds number was 0.4. Comparison of the author's results with the experimental findings of Zhavoronkov (Zhavoronkov, N. M., Aerov, M. E., and Umnik, N. N., Zh. fiz. khimii, 1949, Vol 23, Nr 3) and with those of Leva [Transl. Ed. Note: Leva, Max; Pressure Drop Through Packed Tubes. I. A General Correlation] (Chem. Engineering Progr., 1947,

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The Relationship Between the Hydraulic Resistance Offered by a Layer of (cont.) SOV/124-57-5-5819

Vol 43, p 549 and p 633) reveals a discrepancy. A weakness in the analysis made of the experimental results is the fact that the author refers them to Reynolds numbers computed from the mean diameters of the solid particles comprising the porous filtration medium. Bibliography: 9 references.

Ye. M. Minskiy

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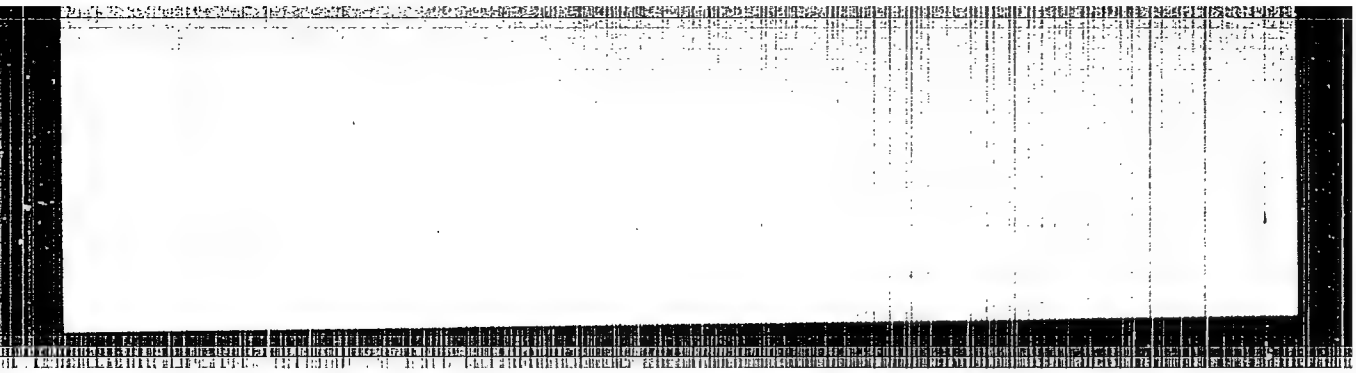

APPROVED FOR RELEASE: 09/24/2001 CIA-RDP86-00513R000514910008-3"

68-7-14/16

AUTHORS: Miryan, I.F., Toptygin, L.A. and German, M.Ya. (Cand.Tech.Sc.)

TITLE: The Combustion of Wastes from Coal Beneficiation on Electricity Generating Stations (TETs). (Szhiganiye na TETs otkhodov ugleobogashcheniya).

PERIODICAL: Koks i Khimiya, 1957, Nr 7, pp. 53-58 (USSR)

ABSTRACT: The use of wastes from coal beneficiation plants of ash content about 60% (a mixture of separated rock and washing residues, Table 1) in boilers for generating electricity on the Bageyskiy Coke Oven Works was investigated. The installation is described in some detail (coal dust burner of TKZ-Babkok type). Coke oven gas was used for a supplementary flame. The following problems were studied: 1) the use of waste product containing about 60% ash; 2) conditions necessary to obtain stable combustion of the mixture; 3) the influence of mineral matter and an increase in ash content on slagging in the fire box; 4) determination of optimum degree of fineness; 5) determination of the degree of wear of equipment and in particular of heating surfaces by ash, and 6) technico-economical indices of the use of waste as fuel. Experimental results are given in Table 2. It was found that the efficiency coefficient of the boiler somewhat decreased. Minimum amount of coke oven gas required was 450-600 n m^3/hr

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The Combustion of Wastes from Coal Beneficiation on Electricity Generating Stations (TETs).

(about 7-8% of the total heat input). During July 1955 - August 1956, the waste product was used as fuel, but only in April and May 1956 the proportion of waste rocks and washery waste was on the level required. The relevant data for this period are given in Tables 4-6 and a graph. Neither slagging nor excessive wear of heating surfaces and auxiliary equipment was observed. It is conduded that all the waste from the beneficiation of coals can be used as boiler fuel providing it is supplemented with coke oven gas flame. Further study of utilising the above waste but without supplementary gas flame is recommended. There are 6 tables and 1 graph.

ASSOCIATION: Bagley Coke Oven Works and Dnepropetrovsk Institute of Chemical Technology. (Bagleyskiy Koksokhimicheskiy Zavod i Dnepropetrovskiy Khimiko-Tekhnologicheskiy Institut)

AVAILABLE: Library of Congress

Card 2/2

GERMAN, Moisey Yakovlevich [Herman, M.IA.]; KORSAK, Yu., red.; MATUSKVICH, S., tekhn.red.

[Use of natural gas in power engineering] Energetychne vykorystannia pryrodnoho gazu. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1959. 146 p. (MIRA 13:9)
(Gas, Natural) (Electric power production)

GERMAN, M.Ya.[Herman, M.IA.], kand. tekhn. nauk

Complete utilization of rock waste in coal preparation plants.
Kompl. vyk. pal.-energ. res. Ukr. no.1:267-278 '59.
(MIRA 16:7)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
(Coal preparation)

GERMAN, M.Ya.; KARASIK, I.I.

Reduction of the hydrogen sulfide content of producer gas by the addition of alkali to coal. Trudy DKHTI no.10:127-129 '60.
(MIRA 14:1)

(Hydrogen sulfide) (Gas producers)

GERMAN, N.M.

Flotation properties of slurry from coal preparation plants of Uglegorsk District, Sakhalin. Soob.Sakhal.kompl.nauch.-issl.inst. AN SSSR no.8:23-35 '59. (MIRA 14:4)

(Uglegorsk District (Sakhalin)—Coal preparation)
(Flotation)

GERMAN, N.Ye., inzhener; FESTA, G.A., inzhener, laureat Stalinskoy premii, redaktor; POPOVA, S.M., tekhnicheskiy redaktor.

[Catalog of spare parts for the ZIS-150 truck, the ZIS-156 compressed gas truck, and ZIS-585 and KAZ-585B dump trucks] Katalog zapasnykh chastei gruzovogo avtomobilia ZIS-150, gazoballonnogo avtomobilia ZIS-156 i avtomobilei-samosvalov ZIS-585 i KAZ-585B. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 267 p. (MLRA 7:11)

1. Russia (1923- U.S.S.R.) Ministerstvo mashinostroyeniya. (Motor trucks--Apparatus and supplies)

GERMAN, N.Ye., inzhener; ZARUBIN, A.G., inzhener, redaktor; MARTENS, S.L., inzhener, redaktor izdatel'stva; UVAROVA, A.F., tekhnicheskiy redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Catalog of spare parts for the ZIL-151 automobile] Katalog zapasnykh chastei avtomobilia ZIL-151. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 289 p. (MLRA 10:8)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye po sbytu avtomobiley, traktorov, kombaynov, motorov i chastey k nim (Motortrucks)

MAMLYEV, Aleksey Ivanovich; SHUTYY, Leonid Rubinovich; FESTA, G.A., inzhener, retsenzent; GERMAN, N.Ya., inzhener, redaktor; ZARUBIN, A.G., redaktor; MODEL', B.I., tekhnicheskiy redaktor

[ZIL-150 automobile] Avtomobil' ZIL-150. Perer. i dop.izd. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1956. 299 p.
(Motortrucks) (MLRA 10:7)

GERMAN, N.Ye., inzhener; ZARUBIN, A.G., inzhener, redaktor; MARTENS, S.L., inzhener, redaktor izdatel'stva; UVAROVA, A.F., tekhnicheskiy redaktor

[Catalog of spare parts for ZIL-150 trucks, ZIL-156 compressed gas trucks and ZIL-585B, ZIL-585E, ZIL-585 dump trucks] Katalog zapasnykh chastei gruzovogo avtomobilia ZIL-150, gazoballonnogo avtomobilia ZIL-156 i avtomobilei-samosvalov SIL-585B, ZIL-585E, ZIL-585. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1957. 259 p. (MLRA 10:8)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye po sbytu avtomobilei, traktorov, kombaynov, motorov i chastei k nim. (Motortrucks)

GERMAN, M.Ye., inzh.; ZARUBIN, A.G., red.; UVAROVA, A.F., tekhn.red.

[Catalog of spare parts for the ZIL-127 interurban motorbus] Katalog zapasnykh chastei mezhdugorodnogo avtobusa ZIL-127. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 355 p. (MIRA 11:5)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye po sbytu avtomobiley, traktorov, kombaynov, motorov i chastey k nim. 2. Zamestitel' glavnogo konstruktora avtozavoda imeni I.A.Likhacheva (for Zarubin)
(Motorbuses)

GERMAN, N.Ye., inzh.; ZAKUBIN, A.G., inzh., red.; UVAROVA, A.F., tekhn. red.

[Catalog of spare parts for the ZIL-155 and ZIL-158 city motorbuses and the ZIL-158A tourist motorbus] Katalog zapasnykh chastei gorodskikh avtobusov ZIL-155, ZIL--158 i turistskogo avtobusa ZIL-158A. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1958. (MIRA 11:8)
407 p.

1. Moskovskiy avtomobil'nyy zavod.
(Motorbuses)

GERMAN, N.Ye., inzh.; ZARUBIN, A.G., inzh., red.; STUPIN, A.K., red.izd-va; UVAROVA, A.F., tekhn.red.

[Catalog of parts for the ZIL-164 and ZIL-164R motortrucks, the ZIL-MMZ-5851 and ZIL-MMZ-585K dump trucks, and the ZIL-MMZ-164N saddle-shaped tractors] Katalog detalei gruzovykh avtomobilei ZIL-164 i ZIL-164R avtomobilei-samosvalov ZIL-MMZ-5851 i ZIL-MMZ-585K i sedel'nogo tiagacha ZIL-MMZ-164N. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry, 1959. 308 p. (MIRA 13:6)

1. Moskovskiy avtomobil'nyy zavod imeni I.A.Likhacheva.
(Motortrucks--Catalogs) (Tractors--Catalogs)

GERMAN, N.Ye., inzh.; SAVRASOV, A.V., inzh.; ZARUBIN, A.G., inzh., red.; STUPIN, A.K., red.izd-va; UVAROVA, A.F., tekhn.red.

[Catalog of spare parts for the ZIL-157 three-axle motortruck and the ZIL-157V saddle-type tractor] Katalog zapasnykh chastei trekhosnogo avtomobilia ZIL-157 i sedel'nogo tiagacha ZIL-157V. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 333 p. (MIRA 13:3)

1. Moskovskiy avtomobil'nyy zavod.
(Motortrucks--Catalogs) (Tractors--Catalogs)

GERMAN, N.Ye., inzh.; SAMOKHINA, N.A.; ZARUBIN, A.G., inzh., red.

[Catalog of parts for ZIL-164A biaxial trucks, ZIL-164AP tractor trucks, ZIL-MMZ-585L and ZIL-MMZ-585M dump trucks, ZIL-157K triaxial trucks, ZIL-MMZ-164AN and ZIL-157KV tractor trucks with saddle-type hitching arrangements] Katalog detalei dvukhosnogo avtomobilia ZIL-164A, avtomobilia-tiagacha ZIL-164AP, avtomobilei-samosvalov ZIL-MMZ-585L i ZIL-MMZ-585M, trekhosnogo avtomobilia ZIL-157K i sedel'nykh tiagachei ZIL-MMZ-164AN i ZIL-157KV. Moskva, Mashgiz, 19[illegible]4. 451 p. (MIRA 17:6)

1. Moskovskiy avtomobil'nyy zavod.

AUTHOR: German, O. SOV/56-34-6-14/51

TITLE: The Kinetic Theory of a Gaseous Flow Through Cylindrical Tubes (Kineticheskaya teoriya techeniya gaza cherez tsilindricheskiye trubki)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 6, pp. 1470-1474 (USSR)

ABSTRACT: This paper tries to give a unified phenomenological method for the investigation of a gaseous flow which gives good results for low and also for usual pressures. This paper relies on the method of W. G. Pollard and R. D. Present (Prezent) to which it adds some plausible physical assumptions. The author investigates a very long cylindric tube and the decrease on the ends of this tube is much better than the average pressure in the tube. With respect to the molecules appearing after the collisions, the flowing gas behaves like a semi-transparent mirror which forces the most of these molecules to leave the volume element in the direction of the flow. The number of the molecules flowing through an element of the cross section can be described by the formula of Pollard-Present (Prezent) with an anisotropic correction. The law

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The Kinetic Theory of a Gaseous Flow Through Cylindrical Tubes

deduced in this paper automatically implies the existence of a sliding (less than the Maxwell sliding). This law gives a minimal velocity of the flow which corresponds well to the experimental data. There are 4 figures and 5 references, 0 of which is Soviet.

ASSOCIATION: Bukharest, Rumyniya (Bucharest, Roumania)

SUBMITTED: May 17, 1957 (initially) and January 30, 1958 (after revision)

S/057/62/032/009/013/014
B117/B186

AUTHOR: German, O.

TITLE: Equations for molecular flow density

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 32, no. 9, 1962, 1134 - 1138

TEXT: The distribution of molecular flow densities in tubes of different shapes was analyzed on the following assumptions: (1) The molecules strike only the tube walls (intermolecular collisions being ignored); (2) the molecules leave the tube walls according to Lambert's law. An integral equation corresponding to Clausing's equation (P. Clausing. Ztschr. f. Phys., 66, 471, 1930) was derived for a cylindrical tube. The integral equation shows that the molecular flow in the tube is determined only by the difference between the pressures at the ends of the tube, and is independent of the mean pressure. This indicates that molecular flow occurs between a volume with a gas density $n_1 - n_2$ and a volume free of gas, so confirming Clausing's hypothesis. The integral equation

$$n(x)=\frac{n_1}{2}\left[1-\frac{x}{\sqrt{x^2+h^2}}\right]+\frac{h^3}{2}\int_0^l \frac{n(X)\,dX}{[(X-x)^2+h^2]^{3/2}}, \qquad (3)$$

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was derived for two parallel plates of infinite width and finite length, and the integral equation

$$n(x)=\frac{n_1}{2}\left[\sin\beta\left(\sin\beta+\frac{h-x\,\mathrm{tg}\,\beta}{\sqrt{x^2+(x\,\mathrm{tg}\,\beta-1)^2}}\right)+\frac{x\cos\beta}{\sqrt{x^2+(h-x\,\mathrm{tg}\,\beta)^2}}-1\right]+$$

$$+\frac{1}{2}\int_0^l\frac{(\cos\beta\,[h-(X-x)\,\mathrm{tg}\,\beta]^2-(X-x)^2\sin^2\beta)\,n(X)\,dX}{[(X-x)^2+[h-(X-x)\,\mathrm{tg}\,\beta]^2]^{3/2}}. \qquad (4)$$

for two non-parallel plates. If the angle of inclination $\beta = 0$, the integral equation for a conical tube goes over into the equation for a cylindrical tube. The analysis shows that the distribution of molecules within the tube depends only on the ratio of its length to its radius. In parallel tubes of equal length and of different diameters, connecting two volumes, the distribution of the molecular flow density obeys various laws. Isobars in porous stoppers are planes not parallel to the edges. Designations: $n(x)$ = gas density in transverse direction x; n_1 = gas density at the tube inlet; n_2 = gas density at the end of the tube; $n(X)$ = variable density along the tube; and h = distance between the plates. There are 6 figures.

SUBMITTED: November 17, 1960
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refraction, on the material constants, and on the frequency. The angle of refraction is the angle of the emerging beam. Maximum polarization is when this angle is $\pi/2$. It is thus shown that the refractive index of bodies can be determined from the measurement of the